

OTAKE - 10/649,607  
Attorney Docker: 041535-0305539

REMARKS

Claims 1-4 are pending. By this Amendment, claim 4 is amended. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Claim 4 was objected to. Claim 4 has been amended to obviate the objection. Reconsideration and withdrawal of the objection are respectfully requested.

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) over Takahashi et al. (U.S. Patent 6,781,648). The rejection is respectfully traversed.

Claim 1 recites a backlight device for lighting a liquid crystal display device. The backlight device includes self-luminous sources in primary colors of red, green, and blue. The three primary colors from the self-luminous sources are mixed and synthesized into white light. The backlight device include a light-conducting plate and/or a light-scattering plate. The self-luminous sources of the three primary colors are illuminated sequentially at different timings for each color and so that the self-luminous sources periodically illuminate in sequence by a switching operation. The light-generating timings for every two of the self-luminous sources partially overlap, which achieves time-division light-emission.

Takahashi et al. disclose that they investigated prior art backlight devices and discovered a problem. The problem was that the luminous efficiencies of blue, red, and green LED's are different from one another and it was necessary to adjust the power applied to the LED's of the respective colors, which led to degradation of the LED's having the highest load applied to them. The color balance of the backlight device was thus lost with the passage of time. Takahashi et al. also discovered that there is a tendency that bluish white light is selected as the background color (white) of a color display. See column 1, lines 44-63.

In order to solve the problem, Takahashi et al. provide a backlight device having a different number of LED's for the respective colors, such that the number of blue LED's is not smaller than the number of any other color type of LED's used. See column 2, lines 16-19. The light source color of the backlight becomes bluish, so that the power load applied to the blue LED's can be set smaller. The backlight device is therefore adapted to the users' needs because the backlight can be kept bluish as required, even in the case where light is transmitted through a greenish liquid crystal cell. See column 2, lines 20-25.

According to their invention, Takahashi et al. determine the number of the respective LED's so that the number of green LED's is not larger than a number of red LED's and the number of green LED's is not greater than the number of blue LED's. The attenuation of the

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green component of the backlight transmitted through the liquid crystal material becomes the smallest, so that the green component is balanced finally. See column 2, lines 26-39

As shown in the embodiment of 2-6, the light source unit 101 of the backlight portion 20 of the liquid crystal display device 1 includes a green LED G1 disposed in the center of the light source unit 101. Two blue LED's B1 and B2 are disposed on opposite sides of the green LED G1 and two red LED's R1 and R2 are disposed on opposite sides of the blue LED's B1.

The Examiner states that Takahashi et al. disclose in column 5, lines 3-12, "that the light sources are simultaneously illuminated of every two light sources partially overlaps two light sources" and that Takahashi et al. disclose in column 6, lines 16-19, that "the light sources are used to produce white light."

Takahashi et al. disclose their wiring diagram in Figure 4. As disclosed by Takahashi et al. in column 5, lines 9-12, that the first and second blue LED's B1 and B2 are switched on simultaneously or off simultaneously. Similarly, the first and second red LED's R1 and R2 are switched on/off simultaneously.

Claim 1 recites that the self-luminous sources of the three primary colors are illuminated sequentially at different timings for each color and so that the self-luminous sources periodically illuminate in sequence by a switching operation. Claim 1 does not recite simultaneously turning sources of the same primary color on or off, like the two blue LED's and/or the two red LED's of Takahashi et al. Therefore, Takahashi et al. do not anticipate claim 1.

With respect to column 6, lines 16-19, Takahashi et al. disclose that because the number of green LED's is the smallest, green may be poor as a backlight. Because green TN is used in the liquid crystal 13, attenuation of the green component of light is the smallest when the light passes through the liquid crystal 13. Green is therefore balanced when the light is viewed finally and the large number of blue LED's easily generates bluish white light, which is in great demand.

Claim 1 recites that the three primary colors from the self-luminous sources are mixed and synthesized into white light. Takahashi et al. disclose using a larger number of blue LED's than green LED's and passing the light through a green liquid crystal material to balance the green and generate a bluish white light. Accordingly, Takahashi et al. do not anticipate claim 1.

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Claim 2 recites additional features of the invention and is allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) over Takahashi et al. are respectfully requested.

Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) over Takahashi et al. in view of Schoniger et al. (U.S. Patent 5,027,258). The rejection is respectfully traversed.

Claims 3 and 4 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein. In addition, Schoniger et al. fail to cure the deficiencies of Takahashi et al. with respect to claim 1 and even assuming it would have been obvious to combine the references, the combination would not disclose or suggest all the limitations of claim 1 and would fail to present a *prima facie* case of obviousness.

It is respectfully submitted that the application is in condition for allowance. Should further issues require resolution prior to allowance, the Examiner is requested to telephone the undersigned at the number below.

Respectfully submitted,

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